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| 10/540,111 | 06/26/2006 | Roland Burk | 016906-0399 | 8877 |
| 22428 7590 08/18/2009 FOLEY AND LARDNER LLP SUITE 500 3000 K STREET NW WASHINGTON, DC 20007 | | | | |
| EXAMINER | | | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/540,111

Applicant(s)

BURK ET AL.

Examiner

TRAVIS RUBY

Art Unit

3744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-893)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date 6/20/2005

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

2. Claim 1 is objected to because of the following informalities: Line 3, “the cooling or heating mode” lacks proper antecedent basis. Appropriate correction is required.
3. Claim 16 is objected to because of the following informalities: Line 2, “the cooling or heating mode” lacks proper antecedent basis. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1, 2, 10, 11, 16, 17, 19, 21, and 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
6. Where applicant acts as his or her own lexicographer to specifically define a term of a claim contrary to its ordinary meaning, the written description must clearly redefine the claim term and set forth the uncommon definition so as to put one reasonably skilled in the art on notice that the applicant intended to so redefine that claim term. *Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1357, 52 USPQ2d 1029, 1033 (Fed. Cir. 1999). The term “condenser” in claims 1, 2, 10, 16, 21, and 24 is used by the claim to mean “compressor”, while

the accepted meaning is "a heat exchanger any device for reducing gases or vapors to liquid or solid form" which is the not the function of a compressor. The term is indefinite because the specification does not clearly redefine the term. The examiner will examine the claims with the understanding that the condenser is actually a compressor.

7. Claim 11 & 19 are indefinite since a broad range or limitation followed by linking terms (e.g., preferably) and a narrow range or limitation within the broad range or limitation is considered indefinite since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired.

8. Claim 17 recites the limitation "the flow duct" in line 2. There is insufficient antecedent basis for this limitation in the claim.

9. Claim 17 recites the limitation "the secondary side" in line 3. There is insufficient antecedent basis for this limitation in the claim.

10. Claim 17 recites the limitation "the primary side" in line 3. There is insufficient antecedent basis for this limitation in the claim.

11. Claim 17 is generally vague and it is unclear what the applicant is actually trying to claim rendering the claim indefinite. Specifically the phrase "on the exit side" is unclear as to which structure of the apparatus that this is referring to. It is also unclear as to where the "nonreturn valve" is being interposed in the circuit and between which elements of the apparatus.

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claims 1, 2, 4-10, 16, 17, 20, 22, and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Karl (US2001/0003311A1).

Karl teaches:

Re Claim 1. A method for operating an air conditioning system of a vehicle, in which a fluid (refrigerant) for conditioning an air stream is circulated in a circuit operable in the cooling or heating mode (Paragraph 24), characterized in that, in the heating mode, the circuit comprises a condenser (ref 4), a heat exchanger (ref 26) and an intermediate store (ref 13) (Paragraph 29 & 30),

the circuit being controlled in such a way that the intake pressure of the condenser at least partially overshoots a saturation pressure in the circuit caused by the ambient temperature (Paragraph 35).

Re Claim 2. The method as claimed in claim 1, characterized in that the heating mode corresponds to an operation of the circuit in a dextrorotary triangulation process, in which the exit of the condenser (ref 4) is connected to an entry of a control valve (ref 22), connected on the exit side to the heat exchanger (ref 26) which is followed on the exit side by the intermediate store (ref 13) and the entry of the condenser (see Figure 1, Paragraphs 29 and 30).

Re Claim 4. The method as claimed in claim 1, characterized in that, in the heating mode, the fluid in the circuit can be divided into at least one active part (branch 1 & 3) and at least one passive part (branch 1 & 2) (Paragraph 29).

Re Claim 5. The method as claimed in claim 1, characterized in that, with the activation of the heating mode, the fluid is routed out of the passive part of the circuit into the active part of the circuit (Paragraph 31).

Re Claim 6. The method as claimed in claim 1, characterized in that, when a predeterminable threshold value for the intake pressure in the active part of the circuit is undershot, the fluid is routed out of the passive part of the circuit into the active part of the circuit (Paragraph 31 and 35 teach a pressure sensor is used to control the air conditioner).

Re Claim 7. The method as claimed in either claim 5, characterized in that, to transfer the fluid out of the passive part of the circuit into the active part of the circuit, the circuit operated in the heating mode is changed over to the cooling mode (Paragraph 31 and 35).

Re Claim 8. The method as claimed in either claim 5, characterized in that, to transfer the fluid out of the passive part of the circuit into the active part of the circuit, the circuit operated in the heating mode is changed over to a laevorotatory triangulation process (Paragraph 31 and 35).

Re Claim 9. The method as claimed in either claim 7, characterized in that the circuit can be operated in the cooling mode or in the laevorotatory triangulation process up to the undershooting of a settable threshold value, the circuit being capable of being changed over to the heating mode again after the undershooting of the threshold value (Paragraph 31 and 35 teach a pressure sensor is used to control the air conditioner).

Re Claim 10. The method as claimed in claim 9, characterized in that the threshold value for an intake pressure and/or for a high pressure and/or for a hot- gas temperature at the condenser can be predetermined (Paragraph 31 and 35 teach a pressure sensor is used to control the air conditioner).

Re Claim 16. An air conditioning system for a vehicle with a circuit (Figure 1), operable in the cooling or heating mode, for the circulation of a fluid (refrigerant) for conditioning an air stream (Paragraph 24), characterized in that, in the heating mode, the circuit comprises a heat exchanger (ref 26), an intermediate store (ref 13) and a condenser (ref 4) for the intermediate storage or for the condensation of the fluid (Paragraph 29 & 30), the condenser being operated at an intake pressure which is higher than the saturation pressure in the circuit caused by the ambient temperature (Paragraph 35).

Re Claim 17. The air conditioning system as claimed in claim 16, characterized in that the an evaporator inserted in the flow duct of the air stream (F2) on the secondary side and in the

circuit on the primary side is provided, which is connected in the circuit, on the exit side, to the intermediate store (ref 13), with a nonreturn valve (ref 12) being interposed (Paragraph 26 & 29).

Re Claim 20. The air conditioning system as claimed in claim 16, in which a control device (ref 31 Figure 2) is arranged between the heat exchanger and the intermediate store (Paragraph 32).

Re Claim 22. The air conditioning system as claimed in claim 16, in which the circuit is subdivided into at least one active (branch 1 & 3) and at least one passive (branch 1 & 2) part (Paragraph 29).

Re Claim 23. The air conditioning system as claimed in claim 22, in which the active part is connected to the passive part by means of a further control device (ref 22), the control device being opened when the fluid quantity in the active part of the circuit overshoots a predeterminable threshold value (Paragraph 31 and 35 teach a pressure sensor is used to control the air conditioner).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Karl (US2001/0003311A1) in view of Hesse (US2003/017778A1).

Re Claim 3. Karl teaches that the compressor can be of a variable capacity and that the pressure of the system can be regulated, it fails to specifically teach a pressure range of 10 bar to 110 bar. Hesse teaches though that the intake pressure can be controlled in a range of about 20 bars (Paragraph 15). It would have been obvious to one having ordinary skill in the art at the time of invention to have an adjustable intake pressure, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

16. Claims 12 & 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Karl (US2001/0003311A1, will be referred to as Karl 'A1) in view of Karl (US5737930 will be referred to as Karl '930, as cited by applicant).

Re Claim 12. Karl 'A1 fails to teach the cooling mode being operated for a predeterminable period of time, the circuit being capable of being changed over to the heating mode again after the expiry of the period of time. Karl '930 teaches the cooling mode being operated for a predeterminable period of time, the circuit being capable of being changed over to the heating mode again after the expiry of the period of time (Column 4 lines 30-33). In view of Karl '930's teachings it would have been obvious to one of ordinary skill in the art at the time of

invention to include a switchover time to Karl 'A1 since it allows for optimal efficiency and comfort of the system.

Re Claim 15. Karl 'A1 fails to teach that a pressure equalization can be carried out in the circuit after the return to the heating mode. Karl '930 teaches that a pressure equalization can be carried out in the circuit after the return to the heating mode (Column 4 lines 1-18, branch 13 helps equalize the pressure when switching between the two modes). In view of Karl '930's teachings it would have been obvious to one of ordinary skill in the art at the time of invention to include a pressure equalization since it prevents slugging the compressor and enhances the safety of the system.

17. Claims 11, 13, 14, 18, 19, 21, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Karl (US2001/0003311A1).

Re Claim 11. Karl teaches the threshold value of the intake pressure can be controlled by a pressure sensor which is reliant on ambient conditions, but fails to specifically teach being 3 bars below the saturation pressure. It would have been obvious to one having ordinary skill in the art at the time of invention to have an adjustable threshold pressure, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Re Claim 13 & 14. Karl teaches an air stream through the evaporator/gas cooler but fails to teach that it can be reduced after the changeover to the cooling mode or to the laevorotatory

triangulation process. It would have been obvious to one having ordinary skill in the art at the time of invention was made to adjust the fan speed, since it has been held that the provision of adjustability, where needed, involves only routine skill in the art. In re Stevens, 101 USPQ 284 (CCPA 1954).

Re Claim 18 & 19. Karl teaches an evaporator (ref 11) and an intermediate store (ref 13) but fails to specify the size of each component. It would have been an obvious matter of design choice to make the evaporator volume smaller than the intermediate storage volume, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1955).

Re Claim 21. Karl teaches a pressure sensor (ref 40) is assigned on the discharge side of the condenser (ref 4). Karl discloses the claimed invention except for locating the pressure sensor at the intake side of the compressor. It would have been obvious to one of ordinary skill in the art at the time of invention was made to locate the pressure sensor on the intake side of the compressor, since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70.

Re Claim 24. Karl teaches that the condenser (ref 4) is connected to the evaporator on the exit side via a control means (ref 31) and on the entry side (ref 30) via an associated controllable connecting line (ref 3), after the opening of the control means gaseous fluid passing

into the evaporator and forcing liquid fluid out of the evaporator into the active part of the circuit (Figure 2, Paragraphs 31-32, 35).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TRAVIS RUBY whose telephone number is (571)270-5760. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frantz Jules or Cheryl Tyler can be reached on 571-272-6681 or 571-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Travis Ruby/
Examiner, Art Unit 3744

/Frantz F. Jules/
Supervisory Patent Examiner, Art Unit 3744